

Patent
62478-6900REMARKS

Claims 17-20, 22 and 33 are allowed. Claims 1, 4, 12-16, 21, 23-28, 30, and 35-38 are cancelled. Claims 2, 3, 5-11, 17-20, 22, 29, 31-34, 39 and 40 remain pending in the applications

The drawings were objected to under 37 CFR 1.83(a). The Office Action asserts the drawings do not show "a potential of the second electrode relative to the first electrode alternates in polarity" recited in claims 2, 7, 29, 31, 32, and 34, (Office Action, Section 2, 1st Paragraph). The claims have been amended to remove the recitation mooted the requirement to amend the drawings.

The specification was objected to for informalities, (Office Action, Section 3, 1st Paragraph). The specification has been amended to correct the objected to language.

Claims 2, 7, 29, 31, 32 and 34 were objected to for informalities, (Office Action, Section 4, 1st Paragraph). The claim language has been amended to correct the objected to recitations.

Applicant's invention improves the luminous efficiency of a gas discharge panel used in plasma displays. A drive circuit applies a short reverse polarity pulse to an electrode in a plasma discharge cell before applying a sustain pulse. During the short pulse electrons begin to flow in the discharge space. When the sustain pulse occurs, the freed electrons are pulled back toward the electrode. This reciprocating motion of electrons caused by the sharp polarity reversal improves the display's luminous efficiency and discharge reliability, (Application, Page 6, Lines 7-10).

Claims 2, 3, 5-11, 29-32, 34, 39, and 40 were rejected under 35 U.S.C. § 112, 2nd paragraph. Claim 30 has been cancelled.

The Office Action asserts that "a short pulse which is opposite in polarity to a potential" recited in each of the rejected claims is indefinite, (Office Action, Section 7, 2nd Paragraph). The

BEST AVAILABLE COPY

Patent
62478-6900

Office Action asserts that it is not clear how the short pulse of potential difference is opposite in polarity to a potential generated between the first and second electrode by the sustain pulse, (Office Action, Section 7, 2nd Paragraph). The claim language in the pending claims has been amended to more precisely recite the feature. In the amended claims, the short pulse has a potential difference between the first and second electrode that is opposite in polarity to the potential difference between the first and second electrode of the sustain pulse. Applicant submits the amended claim language renders the claims definite.

The Office Action also asserts that the claim language "the sustain pulse being not applied to one of the first and second electrodes" in claim 40 renders the claim indefinite in view of a previous recitation in the claim, (Office Action, Section 7, 3rd Paragraph). The Office Action asserts that it is not clear whether the Applicant is claiming the sustain pulse being applied to or not being applied to one of the first and second electrodes. Applicant has amended the claim language to more precisely recite this feature and submits the claim language is now definite.

For the reasons stated above, Applicant believes amended claims 2, 3, 5-11, 29-32, 34, 39, and 40 are now definite and respectfully requests that this rejection be withdrawn.

Claims 2, 3, 5-11, 27-32, 34, 39, and 40 were rejected under 35 U.S.C. § 112, 1st Paragraph. Claims 27, 28 and 30 have been cancelled.

The Office Action asserts that Applicant's disclosure does not adequately disclose "a potential of the second electrode relative to the first electrode alternates in polarity" and "a short pulse, which is opposite in polarity to a potential" recited in pending claims 2, 3, 5-11, 29-32, 34, 39 and 40, (Office Action, Section 9, 2nd Paragraph). The claims have been amended to remove these recitations and now recite a drive circuit (step) that generates a short pulse. The short pulse

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Patent
62478-6900

and drive circuit (step) 100 which includes a scan driver 104, a sustain driver 105, and a data driver 106 are adequately disclosed in the specification, (Application, Figure 5, Figure 15, Page 36, Line 16-Page 38, Line 4).

The Office Action also asserts that the original disclosure does not teach that the driving circuit applies a short pulse of the same polarity as the sustain pulse, (Office Action, Section 9, Paragraph 3). Applicant traverses this assertion. Figure 15 shows this feature and the specification describes this feature, (Application, Page 37, Line 2-12). The drive circuit applies a short pulse (V_1) to electrode 19b and then immediately applies a sustain pulse (V_2) of the same polarity to electrode 19a.

For the reasons stated above applicant believes that claims 2, 3, 5-11, 27-32, 34, 39, and 40 comply with the written description requirement and Applicant respectfully requests that this rejection be withdrawn.

Claims 2, 7, 23, 25, 29-32, 34, 39 and 40 were rejected under 35 U.S.C. 102(e) as being anticipated by *Mikoshiba et al* (U.S. Pat. No. 6,456, 265). Claims 23, 25, and 30 are cancelled. Applicant respectfully traverses the rejection of the pending claims.

Mikoshiba discloses a device that applies a non-discharge pulse after a sustain pulse. *Mikoshiba* teaches that the pulse be applied 40 nS after the sustain pulse to stabilize wall charges. *Mikoshiba* also discloses the results of varying the pulse width between 90ns and 4 μ S.

Claims 2, 7, 31 32, 39, and 40 recite "a plurality of sustain pulseswherein immediately before a leading edge of each sustain pulse the driving circuit generates a short pulse". The Office Action asserts that a short pulse applied immediately before a leading edge of each sustain pulse is disclosed by *Mikoshiba* in Figure 14 and Column 7, Lines 45-48 and 50-62, (Office Action, Section 12, Paragraph 2). The cited text refers to test conditions and results

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Patent
62478-6900

summarized in Table 1 of *Mikoshiba*, (*Mikoshiba*, Column 8, Lines 1-20). *Mikoshiba*, however, explains that during testing a non-sustaining pulse was applied 40 nS after application of the sustain pulse, (*Mikoshiba*, Figure 9, Column 7 Lines 45-48). *Mikoshiba* further asserts that the test consisted of varying the pulse width between 90nS and 4 μ S, (*Mikoshiba*, Figure 9, Column 7 Lines 50-62). Nowhere in the cited text does *Mikoshiba* disclose or suggest applying a short pulse immediately before the leading edge of the sustain pulse.

Moreover, *Mikoshiba*'s Figure 14 teaches away from the application of a short pulse immediately before the leading edge of the sustain pulse, (*Mikoshiba*, Figure 14). Focusing on Figure 14, it is clear that there is a short period of time between *Mikoshiba*'s short pulse 26 and sustain pulse 18. *Mikoshiba*'s short pulse 26 ends with a transition to 0 volts where there is a time delay before the leading edge of the sustain pulse 18. *Mikoshiba*'s description of Figure 14, limited to a single sentence, does not suggest this time delay should be eliminated (Application Column 9, Lines 42-44). The time delay contrasts with Applicant's recitation of a short pulse immediately before the leading edge of a sustain pulse. The waveform differences can be clearly seen by comparing Applicant's Figure 15, -V₁ to V₂ transition with *Mikoshiba*'s Figure 14, short pulse 26 to sustain pulse 18b transition.

Claims 29 and 34 recite "a plurality of sustain pulseswherein immediately after a trailing edge of each sustain pulse the driving circuit generates a short pulse". The Office Action asserts that a short pulse (26) applied immediately after a trailing edge of each sustain pulse (18) is disclosed by *Mikoshiba* in Figure 14 and Column 7, Lines 45-48 and 50-62, (Office Action, Section 12, Paragraph 2). There is no disclosure of a short pulse immediately after the trailing edge of a sustain pulse. In fact, in the cited text, *Mikoshiba* teaches away from applying

BEST AVAILABLE COPY

Patent
62478-6900

a short pulse immediately after a trailing edge by teaching the short pulse (18) should be applied 40 nS after the application of the sustain pulse (18), (*Mikoshiba*, Column 7, Lines 47-49).

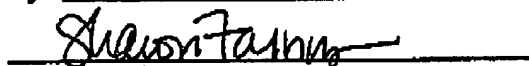
For the reasons stated above Applicant submits that claims 2, 7, 29, 31-32, 34, 39 and 40 are patentable over *Mikoshiba* and respectfully requests that this rejection be withdrawn.

If the Examiner believes a telephone interview will help further the prosecution of this case, the undersigned attorney can be contacted at the listed phone number.

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